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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,438

12/20/2005

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EXAMINER

RAO, SHRINIVAS H

ART UNIT

PAPER NUMBER

2814

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,438	<b>Applicant(s)</b> UDAGAWA, TAKASHI	
	<b>Examiner</b> STEVEN H. RAO	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/23/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/24/2007, 12/20/2005</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

Acknowledgement is made of papers filed claiming priority from U.S. Provisional Application No. 60/489,108 filed on July 23, 2003.

### ***Election/Restrictions***

1. Claims 8 to 11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Gr. II, there being no allowable generic or linking claim.
2. Election was made **without** traverse in the reply filed on 10/23/2008.

### ***Information Disclosure Statement***

The IDSs filed on 12/20/2005 and 08/24/ 2007 have been considered and the initialed PTO -1449s have been made of record in the E-Red folder.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim/1 is/are rejected under 35 U.S.C. 102(e) as being anticipated by Koichi et al. ( EPA No. 1249873, herein after Koichi , also cited in the Foreign patent Office search report).

With respect to claim 1 Koichi et al. describes an n-type ohmic electrode for use with an n-type Group III nitride semiconductor, which is provided to contact with the surface of an n-type Group III nitride semiconductor layer, ( para 0053,0054) wherein the n-type ohmic electrode layer is made of an alloy of aluminum (atomic symbol: Al) and lanthanum (atomic symbol: La) or comprises lanthanum. ( para 0053).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 to 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koichi et al. ( EPA No. 1249873, herein after Koichi , also cited in the Foreign patent

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Office search report) as applied to claim 1 above and further in view of Kita ( U.S. patent No. 5,907,470, herein after Kita).

With respect to claims 2 and 3 Koichi describes the n-type ohmic electrode according to claim 1.

Koichi does not specifically describe wherein the lanthanum content in the n-type ohmic electrode layer is 10 mass% or more on the surface contacting with the n-type Group III nitride semiconductor layer.

However Kita a patent from the same field of invention describes in col. 2 lines 25-30 , etc. wherein the lanthanum content in the n-type ohmic electrode layer is 10 mass% or more on the surface contacting with the n-type Group III nitride semiconductor layer and is less than 10 mass% in the region 30 nm or more distant from the junction interface with the n-type Group III nitride semiconductor layer to provide an electrode in which the leak current can be maintained at desired levels over time and energizing at high temperature. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include the mass % of lanthanum taught by Kita in Koichi's device, the motivation for the inclusion is to provide an electrode in which the leak current can be maintained at desired levels over time and energizing at high temperature. ( kita col. 2 lines 43-49).

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With respect to claim 4 Koichi describes the n-type ohmic electrode according to claim 3, wherein the surface of the n-type ohmic electrode layer opposite the surface contacting with the n-type Group III nitride semiconductor layer is made of aluminum. ( Nita para 0053).

With respect to claim 5 Koichi describes ( in fig.2 etc.) a semiconductor light-emitting device fabricated by providing an ohmic contact electrode on a stacked structure body ( 127,128) in which an n-type Group III nitride semiconductor layer ( 123) and a p-type compound semiconductor layer are provided on one surface of a crystalline substrate (125) and a light-emitting layer is interposed between the n-type and p-type compound semiconductor layers, (124) wherein the n-type ohmic electrode provided to contact with the n-type Group III nitride semiconductor layer is made of a lanthanum-aluminum alloy layer or a lanthanum layer. ( 126).

With respect to claim 6 Koichi describes the semiconductor light-emitting device according to claim 5, wherein the n-type ohmic electrode comprises a lanthanum-aluminum alloy layer or a lanthanum layer in the side contacting with the n-type Group III nitride semiconductor layer and comprises an aluminum layer in the opposite side. ( fig.2, and reasons set out under claim1

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above).

With respect to claim 7 Koichi describes the semiconductor light-emitting device according to claim 5 wherein the n-type ohmic electrode comprises a lanthanum-aluminum alloy layer having a lanthanum content of 10 mass% or more at the junction interface with the n-type Group III nitride semiconductor layer and having a lanthanum content of less than 10 mass% in the region 30 nm or more distant from the junction interface. ( rejected for reasons under claims 2,3 and 5, etc.).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN H. RAO whose telephone number is (571)272-1718. The examiner can normally be reached on 8.30-5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven H Rao/  
Examiner, Art Unit 2814

/Howard Weiss/  
Primary Examiner, Art Unit 2814